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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/556,807	11/09/2006	Ron Knox	Q91511	1427

23373 7590 01/07/2010

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EXAMINER	
FITZPATRICK, ATIBA O	

ART UNIT	PAPER NUMBER
2624	

NOTIFICATION DATE	DELIVERY MODE
01/07/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/556,807	KNOX ET AL.	
	Examiner	Art Unit	
	ATIBA O. FITZPATRICK	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 September 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40 and 50-53* is/are pending in the application.

4a) Of the above claim(s) *15-34,37-40 and 50-53* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,9-14,35 and 36* is/are rejected.

7)☒ Claim(s) *4-8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *07/15/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to the prior art rejections have been considered but are moot in view of the new ground(s) of rejection necessitated by amendment. Applicant argues that the Opitz reference does not recite the word "scatter". Applicant is advised that the Opitz reference need not recite the work scatter as light scattering must occur when light is emitted towards a smoke cloud. Scattering occurs in that when light becomes incident on the smoke particles in the smoke cloud, the light will scatter in many different directions. The light does not need to be on the opposite side of the smoke cloud relative to the imaging device as is evidenced by the Oppelt reference. Some of the scattered light will be detected by the imaging device. Applicant also argues that the Opitz reference does not teach that one can identify the location of the particles. Applicant is advised that the claim does not require an interpretation of determining the coordinates of an individual particle. Note that if a portion of the smoke cloud is located in a portion of the image, then the particles within that portion are located within that portion of the image. This interpretation is clearly taught by the Opitz and Ishii references.

With regards to Applicant's arguments against the combination of the Opitz and Garbundy references, MPEP 2141.02 VI states that: "the prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise

discourage the solution claimed…." In re Fulton, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004). The Garbundy reference, in no way, disparages the use of images or image processing. Moreover, the Garbundy reference is no longer used in this respect, so Applicant's arguments in this regard are moot.

Applicant also argues that the Opitz and Garbundy references cannot be combined because Garbundy pertains to smoke occurring outdoors and Opitz pertains to smoke occurring indoors, such that one of ordinary skill would not look to combine the teachings of these references. However, both references pertain to emitting light towards a target area to determine whether smoke is present in this area by capturing the light scattered by the smoke. The fact that the smoke may be in or outdoors is a trivial matter. One of ordinary skill in the art would definitely combine the teachings of these references. Also, considering the KSR vs. Teleflex decision, the combination of the references teaches all limitations in the claim, and one of ordinary skill in the art at the time the invention was made could have combined the elements as claimed by known methods and, in combination, each component functions the same as it does separately. One of ordinary skill in the art at the time the invention was made would have recognized that the results of the combination would be predictable and have no unexpected results.

Applicant argues that the depending claims are allowable since the independent claims are alleged to be allowable, but this assertion is obviated with the office's foregoing arguments. Note that claims 4-8 have been indicated to contain allowable subject matter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by JPN 05020563 (Ishii). Note that Applicant cited this reference on IDS dated 07/15/2009, and provided a copy along with a partial translation and machine translation, which are present in the image file wrapper.

As per claim 1, Ishii teaches a method of detecting particles, comprising the following steps **(Limitations present only within the preamble are not given patentable weight)**:

emitting a beam of radiation into a monitored region **(Ishii: Fig. 1,3: 14; partial translation: para 13: "light emitter 14" ; abstract)**;

capturing images of the monitored region, having one **(only one required)** or more image segments, with an image capture device **(Ishii: Fig. 1,3: 10; partial translation: para 15: "the area satisfying the conditions is detected as a smoke area"; paras 14-15: "two data sequential in time… memories 20A, 20B"; paras 23-27: "mask"; Figs. 1,3; abstract)**; and

in a data processor, detecting a variation in scattered radiation in images of the

monitored region indicating the presence of the particles **(Ishii: partial translation: para 15: "smaller… larger" ; paras 23-27; Figs. 1,3; abstract; machine translation: para 18: "computes the variation"; Figs. 1,3: 30)**.

Arguments made for rejecting claims 3 and 35 are analogous to arguments made for rejecting claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 9, 13, 14, 35, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over JPN 05020563 (Ishii) in view of USPGPubN 20020153499 (Oppelt) and USPGPubN 20020135490 (Opitz). Note that Applicant cited this reference on IDS dated 07/15/2009, and provided a copy along with a partial translation and machine translation, which are present in the image file wrapper.

As per claim 1, Ishii teaches a method of detecting particles, comprising the following steps **(Limitations present only within the preamble are not given patentable weight)**:

emitting a beam of radiation into a monitored region **(Ishii: Fig. 1,3: 14; partial**

translation: para 13: "light emitter 14" ; abstract);

capturing images of the monitored region, having one **(only one required)** or more image segments, with an image capture device **(Ishii: Fig. 1,3: 10; partial translation: para 15: "the area satisfying the conditions is detected as a smoke area"; paras 14-15: "two data sequential in time… memories 20A, 20B"; paras 23-27: "mask"; Figs. 1,3; abstract)**; and

in a data processor, detecting a variation in scattered radiation in images of the monitored region indicating the presence of the particles **(Ishii: partial translation: para 15: "smaller… larger" ; paras 23-27; Figs. 1,3; abstract; machine translation: para 18: "computes the variation"; Figs. 1,3: 30)**.

Oppelt teaches emitting a beam of radiation into a monitored region **(Oppelt: Figs. 1,4: "S"; Figs. 2,3: "S1", S2" respectively; para 17)**;

capturing images of the monitored region, having one **(only one required)** or more image segments, with an image capture device **(Oppelt: Figs. 1-4: E1-E6; para 4; para 7: "detector array"; para 18)**; and

in a data processor, detecting a variation in scattered radiation in images of the monitored region indicating the presence of the particles **(Oppelt: abstract: "dispersion light smoke detector"; para 4: "scattered light smoke alarm… imaging optical system"; para 9: "image evaluation… smoke… can be determined"; para 19: "correlation")**.

Thus, it would have been obvious for one of ordinary skill in the art at the time the invention was made to implement the teachings of Oppelt into Ishii since Ishii suggests smoke in a monitoring region using a light emitter and an imaging device and processing the captured images in general and Oppelt suggests the beneficial use of detecting smoke in a monitoring region using a light emitter and an imaging device and processing the captured images while defining the measuring volume so that "the interference sensitivity of the inventive scattered light smoke alarm is minimized" (para 6) in the analogous art of image processing. Furthermore, one of ordinary skill in the art at the time the invention was made could have combined the elements as claimed by known methods and, in combination, each component functions the same as it does separately. One of ordinary skill in the art at the time the invention was made would have recognized that the results of the combination would be predictable.

Opitz teaches emitting a beam of radiation into a monitored region; capturing images of the monitored region, having one **(only one required)** or more image segments, with an image capture device; and in a data processor, detecting a variation in scattered radiation in images of the monitored region indicating the presence of the particles **(Opitz: Figs. 1, 2; abstract; paras 6-10, 12-15)**.

Thus, it would have been obvious for one of ordinary skill in the art at the time the invention was made to implement the teachings of Opitz into Ishii since Ishii suggests smoke in a monitoring region using a light emitter and an imaging device and

processing the captured images in general and Opitz suggests the beneficial use of detecting smoke in a monitoring region using a light emitter and an imaging device and processing the captured images wherein temporally spaced images are compared so that "smoke and/or fire in the room can be detected with high reliability and very quickly" (para 7) in the analogous art of image processing. Furthermore, one of ordinary skill in the art at the time the invention was made could have combined the elements as claimed by known methods and, in combination, each component functions the same as it does separately. One of ordinary skill in the art at the time the invention was made would have recognized that the results of the combination would be predictable.

As per claim 2, Ishii in view of Oppelt and Opitz teaches a method as claimed in claim 1. Ishii does not teach modulating the beam of radiation. Opitz teaches modulating the beam of radiation **(Opitz: See arguments made for rejecting claim 1: para 14)**.

As per claim 3, Ishii in view of Oppelt and Opitz teaches a method as claimed in claim 2, wherein scattered radiation within the zone is represented in one or more segments of a corresponding image, which allows for the location of the particles in the region to be identified **(Ishii: See arguments made for rejecting claim 1)**. Opitz teaches scattered radiation within the zone is represented in one or more segments of a corresponding image, which allows for the location of the particles in the region to be identified **(Opitz: See arguments made for rejecting claim 1: para 10, 22, 23)**.

As per claim 9, Ishii in view of Oppelt and Opitz teaches a method as claimed in claim 1. Ishii does not teach directing the radiation along a path and identifying a target in the images, the target representing a position at which the radiation is incident on an objective surface within the region. Opitz teaches directing the radiation along a path and identifying a target in the images, the target representing a position at which the radiation is incident on an objective surface within the region **(Opitz: See arguments made for rejecting claim 1: Note that the smoke cloud or a particle within the smoke cloud can be understood to be the target. The emitted light is clearly incident on the target and is directed along a path as shown in Fig. 2. The targets (image elements) are detected in the image)**.

As Claim 13, Ishii in view of Oppelt and Opitz teaches a method as claimed in claim 1. Ishii does not teach the images are processed as frames which are divided into sections which represent spatial positions within the monitored region. Opitz teaches the images are processed as frames which are divided into sections which represent spatial positions within the monitored region **(Opitz: See arguments made for rejecting claim 1 and 6: Note that the prior image and subsequent image of the scene are understood as "processed as frames")**.

As Claim 14, Ishii in view of Oppelt and Opitz teaches a method as claimed in claim 13. Ishii does not teach monitoring intensity levels in associated sections of the images and assigning different threshold values for different spatial positions within the region which

correspond to the associated sections. Opitz teaches monitoring intensity levels in associated sections of the images and assigning different threshold values for different spatial positions within the region which correspond to the associated sections **(Opitz: See arguments made for rejecting claim 1, 6, and 7)**.

Arguments made in rejecting claims 35 and 36 are analogous to arguments for rejecting claim 1.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over JPN 05020563 (Ishii) in view of USPGPubN 20020153499 (Oppelt) and USPGPubN 20020135490 (Opitz) as applied to claim 9 above, and further in view of USPN 3688298 (Miller).

As per claim 10, Ishii in view of Oppelt and Opitz teaches a method as claimed in claim 9, wherein a location of the target in the images is monitored **(Ishii, Oppelt and Opitz: See arguments made for rejecting claims 1 and 9)**. Ishii does not teach the emission of radiation is ceased in response to a change in the location of the target. Miller teaches the emission of radiation is ceased in response to a change in the location of the target **(Miller: abstract: "A photo cell is stationed at the end of the path of laser light for deactivating the laser and actuating an alarm signal when the beam of light is broken by an object such as an intruder moving through the beam"; col 1,**

lines 52-67: "instantaneously terminating the generation of the beam when the beam is broken by an object or person moving through the beam"; Fig. 3).

Thus, it would have been obvious for one of ordinary skill in the art at the time the invention was made to implement the teachings of Miller into Ishii since Ishii suggests a system for detecting a target in general and Miller suggests the beneficial use of a system for detecting a target using a laser wherein detected motion of the target causes the laser to be deactivated as to "safeguard the intruder, innocent or otherwise" in the analogous art of image processing. Furthermore, one of ordinary skill in the art at the time the invention was made could have combined the elements as claimed by known methods and, in combination, each component functions the same as it does separately. One of ordinary skill in the art at the time the invention was made would have recognized that the results of the combination would be predictable.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over JPN 05020563 (Ishii) in view of USPGPubN 20020153499 (Oppelt) and USPGPubN 20020135490 (Opitz) as applied to claim 1 above, and further in view of JPN 362153780 (Sakagami).

As per claim 11, Ishii in view of Oppelt and Opitz teaches a method as claimed in claim 1, comprising identifying a location of an emitter **(Ishii, Oppelt and Opitz: See arguments made for rejecting claim 1)**. Ishii does not teach comprising identifying a

location of an emitter in the images. Sakagami teaches comprising identifying a location of an emitter in the images **(Sakagami: abstract: "To perform the detailed and accurate display of an image, by simple constitution wherein a plurality of light source arrays are rotated at a high speed and the light sources of light source bars are arranged so as to shift the positions thereof to each other allowing the loci of the light sources". The loci identify the location of the light sources in the display image)**.

Thus, it would have been obvious for one of ordinary skill in the art at the time the invention was made to implement the teachings of Sakagami into Ishii since Ishii suggests a light emitting imaging system in general and Sakagami suggests the beneficial use of a light emitting imaging system wherein the location of an emitter in the image is identified as to "perform the detailed and accurate display of an image" (Sakagami: abstract) in the analogous art of image processing. Furthermore, one of ordinary skill in the art at the time the invention was made could have combined the elements as claimed by known methods and, in combination, each component functions the same as it does separately. One of ordinary skill in the art at the time the invention was made would have recognized that the results of the combination would be predictable.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over JPN 05020563 (Ishii) in view of USPGPubN 20020153499 (Oppelt), USPGPubN

20020135490 (Opitz), and JPN 362153780 (Sakagami) as applied to claim 11 above, and further in view of USPN 3788742 (Garbundy).

As per claim 12, Ishii in view of Oppelt, Opitz, and Sakagami teaches a method as claimed in claim 11. Ishii does not teach determining an operating condition of the emitter based on radiation intensity at the identified location of the emitter. Garbundy teaches determining an operating condition of the emitter based on radiation intensity at the identified location of the emitter **(Garbundy: See arguments made for rejecting claim 11. Fig. 1: 10, 16; col 5, lines 45-67. When the intensity is returned (scattered) back to the receiver which is located in close proximity to the emitter, a pulse being received denotes that a corresponding pulse was sent from the emitter. Sakagami: See arguments made for rejecting claim 11.)**.

Thus, it would have been obvious for one of ordinary skill in the art at the time the invention was made to implement the teachings of Garbundy into Ishii since Ishii suggests a system for emitting radiation directed to an area potentially encompassing a smoke stack/plume in order to detect the presence of the smoke stack/plume in general and Garbundy suggests the beneficial use of a system for emitting radiation directed to an area potentially encompassing a smoke stack/plume in order to detect the presence of the smoke stack/plume as for “determining the presence, density, range and depth of a particular molecular species in a gas distribution” (Garbundy: col 1, lines 5-10) in the analogous art of image processing. Furthermore, one of ordinary skill in the art at the

time the invention was made could have combined the elements as claimed by known methods and, in combination, each component functions the same as it does separately. One of ordinary skill in the art at the time the invention was made would have recognized that the results of the combination would be predictable.

Allowable Subject Matter

Claims 4-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Atiba Fitzpatrick whose telephone number is (571) 270-5255. The examiner can normally be reached on M-F 10:00am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on (571)272-7413. The fax phone number for Examiner Atiba Fitzpatrick is 571-270-6255.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Atiba Fitzpatrick

/A. O. F./

Examiner, Art Unit 2624

/Samir A. Ahmed/

Supervisory Patent Examiner, Art Unit 2624